

MEDICINE

Vitamin Plus Casein Protects Rats Against One Cancer

Substances Are Not Curative in Human Cancer But Finding Is Exciting Because It May Give New Lead

PARTIAL protection by diet against a certain type of experimental cancer in rats has been achieved in research at Memorial Hospital, New York City. The work is reported by Dr. C. P. Rhoads, C. J. Kensler, K. Sugiura, N. F. Young and C. R. Halter (*Science*, March 28.)

One of the B vitamins, called riboflavin, already prominent in diet news, and casein, chief protein of milk, are the diet ingredients responsible for the cancer protection.

"These two substances are not curative in human cancer," Dr. Rhoads declared. He said they have already been tried on cancer patients but no cures resulted.

Scientists hearing of the work of Dr. Rhoads and associates had been wondering whether these diet ingredients could

protect man against cancer, even if they cannot cure it.

"There is no evidence bearing on the application of this principle to cancer in man," Dr. Rhoads said when asked about the possibility of cancer prevention in humans.

The results of the research are nevertheless considered "exciting." They give a new lead in the long search to find what relation, if any, diet may have to cancer, and they will encourage scientists to keep on working along this line with greater hope of finding something that is applicable to cancer prevention in man.

The rats in the experiments got cancer from being fed a dye called butter yellow. This chemical has nothing to do with butter and is not found in any food-stuffs. Its ability to cause liver cancer and

liver cirrhosis was discovered by Japanese scientists who were trying to reproduce in laboratory animals a condition commonly found in people in southwestern regions of the Orient, as a step toward finding why so many of these people get cancer of the liver and stomach.

Butter yellow produces cancer of the liver in from 70 to 80 out of every 100 rats. When in addition to butter yellow the animals are given daily doses of riboflavin and casein, cancer develops at a rate of only 3 out of every 100, Dr. Rhoads and associates report.

Riboflavin alone, however, is almost without protective effect against the dye-caused cancers. The addition of casein to the riboflavin was suggested by Professors Vincent du Vigneaud and Dean Burk of Cornell University Medical College. They and the Memorial Hospital group are now trying to find what diet factors besides riboflavin may be involved in cancer protection and how casein exerts its protective effect in rats. The sulfur-containing amino acids, especially, are under investigation.

Science News Letter, April 12, 1941

PUBLIC HEALTH

Diphtheria Epidemic in Halifax a Warning

A DIPHTHERIA epidemic which raged in Halifax, N. S., this winter and threatened to slow that prize port's steady flow of supplies to embattled Britain has a lesson for us here in the United States. The story of the epidemic and of the Harvard Medical School expedition's part in controlling it has been delayed by war censorship. It can be told now that the epidemic is over and steps have been taken to prevent its recurrence.

Diphtheria is a preventable disease and has been so since the last great war. Toxin-antitoxin and toxoid when given to children are almost sure preventives of diphtheria in later life. Toxin-antitoxin was first used in 1913 and 1914. Most doctors and health authorities now urge parents to give their children this protection. In Halifax, apparently, parents had not been advised, or had not followed advice to have their children protected against diphtheria by immunization.

When the Harvard expedition arrived in Halifax, the town was, in the words of one member of the expedition, a virtual "hell-hole of infection." Its normal population of about 70,000 had nearly doubled and one-third of the city's doctors had been called to service.

Arriving ships brought the infections



STRATEGIC

This is pure tungstic oxide that will be used to make the very fine wire for electric light bulbs. Westinghouse Lamp Laboratories are investigating the use of American tungsten ores which would make us independent of sources in the Orient.

of the world. The first to arrive, early last fall, was diphtheria. It spread quickly, and although antitoxin saved many lives, the number of sick shot upward sharply. Only one person in five was immune to diphtheria, it was found.

Immunity was no higher in the large army and navy population in and about the city. Officials had neglected routine immunization in the erroneous belief that most adults were immune anyway. This belief was based on surveys in large cities where the disease itself had conferred a natural immunity. Canada has had little diphtheria in recent years, and thus had little natural immunity.

The situation was quickly controlled

by immunizing those who had not yet gotten sick. Army and navy officials ordered immunization for the troops and daily, free immunization clinics were set up for the civil population. The number of new cases began to decrease within a few days.

Many parts of the United States, like Canada, have had little or no diphtheria in recent years. Credit for some of this goes to the widespread diphtheria immunization campaigns conducted by health authorities. The Halifax experience, however, shows that there can be no let-up in the fight.

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PUBLIC HEALTH

Examine All Heatless Permanent Wave Solutions

Hydrogen Sulfide, Blamed for Fatality; Fluid Has Been Used Extensively Without Causing Any Known Injury

ALL heatless permanent wave solutions sold in interstate commerce are now being examined by the U. S. Food and Drug Administration, in an effort to avoid further tragedies such as the death on March 19 of a young matron in Atlanta, Ga., following the use of one such solution.

Further interstate shipment of the particular solution involved in the Atlanta tragedy has been forbidden, Dr. W. G. Campbell, chief of the Food and Drug Administration, stated. Sale or use of bottles of the solution already in a state and perhaps on its beauty parlor shelves is a matter for local or state action, Dr. Campbell pointed out, and does not come within the jurisdiction of the Food and Drug Administration.

Hydrogen sulfide, the smelly poisonous gas that earlier generations of high school chemistry students knew from the odor of rotten eggs it imparted to laboratories was the chemical in the heatless permanent wave solution which killed the 39-year-old Atlanta matron.

This solution has been used extensively without causing any injury, so far as the Food and Drug Administration and medical societies, including the American Medical Association, know. A report of this apparently first fatal case, made by Dr. Allen H. Bunce, Dr. Francis P. Parker and Dr. George T. Lewis, of Atlanta, appears in the *Journal of the*

American Medical Association, (April 4).

Women may, however, have been injured or made sick by the curling solution without the cause being known, Dr. Campbell pointed out.

Sleepiness, headache, irritation of the eyes, and dizziness are symptoms of poisoning from dilute concentrations of hydrogen sulfide. Many a woman experiencing these symptoms after a permanent wave may have attributed them to fatigue and not even bothered to call a physician. If the symptoms were more serious and a physician was called, the permanent wave may have been forgotten in the general excitement and the physician may thus have been deprived of a clue to the cause of the illness.

Special susceptibility to hydrogen sulfide may exist. This may explain why only one death has occurred from the use of the curling solution among the many women who have probably had it applied to their hair.

The danger of hydrogen sulfide poisoning, as well as its unpleasant odor, has led chemistry teachers to work out analytical procedures which avoid the use of this chemical in schools. Hydrogen sulfide has caused a number of deaths in industry. It is found in sewers, tannery vats, glue factories, vulcanizing, chemical and mining industries, and is used in the manufacture of sulfur dyes, especially the browns and khakies.

Science News Letter, April 12, 1941

ANTHROPOLOGY

American Heads Broader; Long Heads Going Out

MORE grief for admirers of the long-headed Noble Nordic: American heads are growing broader, declares Dr. Ales Hrdlicka of the Smithsonian Institution. And not only American heads, but the heads of all known peoples—and the more civilized they are the more pronounced the trend toward broad-headedness.

It's largely a matter of getting better cooked meals, the Smithsonian anthropologist explains. Our heads, to start with, have no particular prejudices of their own as to shape. If we exert the chewing muscles attached to their sides, in eating tough food, our skulls plastically respond by becoming longer and narrower. If we work our jaws less, they remain closer to the natural rounded shape.

While there are numerous indications of increasing broad-headedness, Dr. Hrdlicka states, there is no instance known anywhere in the world where a people is becoming longer-headed.

"The skull," explains Dr. Hrdlicka, "may be regarded as comparable to a plastic bag filled with something that can only behave as a near liquid. Were other factors absent, this would necessarily give the skull the shape of a simple globe, or near-globe, as can actually be observed at certain embryonic or fetal stages. If the skull or that part of it, which contains the brain, assumes any different shape, the cause of this must lie essentially in factors outside the brain.

"The ultimate shape of the skull must be considered as the result of a series of mechanical agencies connected partly with the hereditary endowments of the different cranial bones and partly with the action of all muscular, pressural, and other outside factors that have operated on it from its beginning. A few weeks of accidental or artificial pressure will deform the skull of the newborn infant and the brain for all the rest of its life, and no amount of brain development will be capable of removing the deformation, showing that the brain, while influencing directly the size of the skull, has little effect on its shape."

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Tiny larvae of some flour-infesting insects can enter paper bags through holes made by the needles in stitching—solution, gum-latex tape over the sewing at top and bottom.